

MEETING SUMMARY

ETV Source Water Protection Pilot Watershed Protection Technical Advisory Group April 27, 2000 Raleigh, North Carolina

Opening Remarks

Tom Stevens, NSF pilot manager for the Environmental Technology Verification (ETV) Source Water Protection Pilot, welcomed all participants to the first meeting of the Watershed Protection Technical Advisory Group (SAG). Mr. Stevens reviewed the goals for the meeting:

Update the group on technologies for which protocol development is currently underway

Identify and prioritize additional technologies for consideration under the Pilot

Identify key contacts, organizations, and conferences for Pilot outreach

Review of November Infrastructure and Watershed Protection Stakeholder Advisory Group Meeting

Mr. Stevens provided a brief summary of the November 1999 Infrastructure and Watershed Protection Stakeholder Advisory Group Meeting in Baltimore, Maryland. It was at this meeting that the formation of a Technical Advisory Group specific to watershed protection issues was initially recommended. Some watershed protection technology areas were also suggested during the stakeholder meeting. The watershed protection technology areas currently being considered under the ETV Source Water Protection Pilot were identified by either NSF following a canvass of state source water protection plan preparers or by other stakeholders of the Pilot.

Mr. Stevens explained that the ETV Program is scheduled to present a report to Congress in fall 2001. As a result of this pending deadline, there is considerable interest in identifying technology areas for which testing could begin by late summer 2000. There is also interest in identifying technology areas with different test periods. Technologies with shorter test periods will provide the Pilot with verifications for inclusion in the 2001 Report to Congress, while technologies with longer test periods will provide verifications in subsequent years.

Technologies Currently Prioritized under the ETV Source Water Protection Pilot

Protocol development is actively underway for three watershed protection areas: in-drain treatment technologies, dental amalgam separation technologies, and animal waste treatment technologies. Two additional technology areas are under consideration: sludge treatment (to meet the pathogen reduction requirements of 40 CFR Part 503 – Biosolids Rule) and medical waste treatment.

In-drain treatment technologies are drain inserts designed for use in service bays, fuel dispensing stations, truck washdown areas, and indoor industrial operation (equipment and floor washdown) for the removal of contaminants such as hydrocarbons, solvents, anti-freeze, metals, and oil and grease. Four vendors of in-drain treatment technologies are working with the SWP Pilot and an independent contractor to develop a draft verification protocol. This protocol is scheduled for peer-review within the next several weeks and will be available for public

comment by early summer.

A protocol for evaluating dental amalgam separation technologies is also being developed under the Pilot. Ten to twelve vendors of technologies that could be evaluated under this protocol have been identified, with one vendor expressing keen interest in participating in the program. A German standard for evaluation of dental amalgam separation technologies exists, but it specifies evaluation under laboratory conditions, involving simulated wastewater (particulate matter added to a clean water matrix). Input from stakeholders has indicated that a more appropriate evaluation would be completed using actual dental wastewater, focusing on the removal of both particulate and dissolved mercury. Development of a protocol has been initiated and is scheduled for peer-review within the next several weeks. The protocol will be available for public comment by early summer.

Drs. John Classen and Mike Williams, both of North Carolina State University, provided the Technical Advisory Group with an update on the development of animal waste treatment protocols, for which NCSU is under contract with the SWP Pilot. Two general protocols for unit processes or operations are being developed - one addressing operations for solids treatment, and the other addressing operations for liquid treatment. The Technical Advisory Group was provided with a status report showing the types of technologies that NCSU has evaluated to date through the Animal and Poultry Waste Management Center (APWMC), which includes aerobic upflow fixed-media biofiltration/solids separation/solids coating, tangential flow separator, sequencing batch reactor, and impeller aeration. It was explained that the technology evaluations performed by the APWMC have taken place on a farm. Dr. Williams suggested that the SWP Pilot consider evaluation of animal waste treatment technologies under controlled conditions. This approach could shorten the test period from a year to several months.

In the areas of sludge treatment and medical waste treatment, vendors have contacted NSF and requested that a test plan be developed for the evaluation of their technology. The Source Water Protection Pilot has the option of proceeding directly to test plan development for "one-of-a-kind" technologies or in cases where only one or two vendors have expressed interest in verification. For most technology areas, however, a generic protocol is developed first. The generic protocol provides direction for developing test plans, which are vendor, technology, and testing location specific.

Potential Watershed Protection Technology Areas

Based on the canvass of preparers of state source water protection plans and the guidance of stakeholders, the following watershed protection technology areas have been identified:

- Ship ballast water treatment
- Precision agriculture
- Spill containment and control
- Surface water restoration
- Flexible membrane liners (for landfills, lagoons, etc.)
- Soil stabilization/erosion control
- Non-chemical water conditioning
- Algaecides
- No-till technologies
- Interceptors for solids separation

Gail Roderick (U.S. Coast Guard) provided the Technical Advisory Group with an overview of efforts under the Coast Guard Research and Development Center to restrict the ability of aquatic nuisance species from entering U.S. navigable waters from ship ballast water. Ballast water is the primary means by which aquatic nuisance species are introduced to new environments, and is responsible for transporting more than 3,000 species daily, ranging from viruses to plants and animals. With several cases of cholera being discovered in the ballast water of

cargo ships in the Gulf of Mexico in the early 1990s, there is a keen awareness of the urgency with which this problem needs to be addressed. Ballast water exchange is being used as an interim measure to reduce aquatic nuisance species entering U.S. waterways, but is imperfect because it destabilizes the ship and imparts structural stresses for which vessels were not designed. Alternatives to ballast exchange have been identified, but more comprehensive work must be completed. Work is currently under way to identify how technologies such as UV radiation and filtration might apply to flows exceeding 1500 gpm. Other work groups have been formed to consider development of standards for ballast water treatment systems.

Spill containment was also discussed, both for land and water applications. EPA had a program to evaluate land based spill containment, but it is not thought to still be operational. The USCG has several spill containment research and testing efforts in place, including spill containment booms and fire booms. Gail Roderick provided the USCG contact heading the program.

Other possible technologies were discussed, including surface water restoration, non-chemical process water treatment, algaecides, no-till technologies and interceptors for solids separation. Each was described and discussed by the group. Additional technologies were also identified and discussed. NSF suggested that membrane liners, used for lining landfills or treatment lagoons, also be included in the list of technologies to be considered by the group to address concerns raised by the SWPP canvass. A protocol exists for these technologies, which could provide the basis for verification testing. The group agreed to include membrane liners in the list of technologies for prioritization.

Modified animal feed was also discussed as another technology for consideration. These feeds have phytase added to reduce the amount of phosphorus excreted by animals. Phosphorus is becoming the key nutrient in determining land application loading, and a reduction of phosphorus in the waste will reduce the land area needed for waste disposal. The group discussed whether this technology would fall within the scope of the Pilot, and if it is more a pollution prevention issue, such as auto emissions. It was agreed that this would be within the Pilot scope as phosphorus is a significant concern in the Chesapeake Bay area, as well as other parts of the country, and reduction at the source could have a significant impact on phosphorus that could enter surface waters.

Other technologies suggested by the group included lagoon covers (to limit odor migration from, or rainfall into, treatment lagoons), funeral home wastes, car wash treatment (to allow for reuse of water) and barrier curtains (for containment of contaminants in surface waters). Each was discussed by the group.

Prioritization of Identified Technologies

Prior to prioritizing the identified technologies, a question was raised regarding the Pilot funding and the availability of funding for testing support. It was explained that funds were needed to support NSF personnel for managing the Pilot and QA/QC oversight, support for maintenance of stakeholder groups, and contractual arrangements including outreach activities, protocol development and support for testing. It was further explained that the funding available for testing activities will be determined based on the number of potential technologies to be evaluated and the cost for testing. It was emphasized that the vendor will still be expected to

The group was reminded of the considerations for prioritizing technologies, including:

- C Positive environmental impact
- C Demonstrated need for technology
- C Availability of vendors
- C Test protocol is do-able (complexity or availability of protocol, test cost vs. equipment cost)
- C Test duration is within Pilot period

A complete list of the technologies identified by the Technical Advisory Group for watershed protection is included in Attachment 2. The five technology areas for which protocol development or vendor contact has been initiated were excluded from the prioritization. Prioritizing the remaining fifteen technologies was completed by providing each participant with fifteen votes, which could be spread among the technologies. The only stipulation was that no person could place more than five votes for any single technology. The resulting list of priority technologies were:

- C Ship ballast water
- C Bioadditives to a collection system
- C Modified animal feed
- C Car wash treatment systems
- C Spill containment and control
- C Membrane liners
- C Surface water restoration
- C Interceptors for solids separation
- C Non-chemical process water treatment
- C Funeral home waste
- C Soil stabilization/erosion control
- C Precision agriculture
- C Barrier curtains

Two of the technologies included in the list of possible technologies received no votes. Algaecides and no-till technologies were not thought by the group to be technologies for further consideration.

Key Contacts

The Technical Advisory Group suggested that the Association of State and Interstate Water Pollution Control Administrators (ASIWPCA) be invited to participate in the Pilot. It was explained that ASIWPCA had been invited early in the Pilot to participate, but had declined. A follow up contact will be made as the focus of the Pilot has been considerably clarified, which may increase their interest in participating. Participants were asked to contact NSF with any suggestions for additional participants.

ATTACHMENT 1

List of Participants for ETV Source Water Protection Pilot Watershed Protection Technical Advisory Group Meeting April 27, 2000

Participant	Organization	Classification
Mike Williams *	N.C. State University	University
John Classen	N.C. State University	University
Greg Potter	Mother Environmental	Vendor
Gail Roderick	U.S. Coast Guard Research & Development Center	User
Michiel Doorn	Arcadis Geraghty & Miller	Consultant
Donald Wells *	National Association of Conservation Districts	Trade Organization
Victor D=Amato	Arcadis Geraghty & Miller	Consultant
Dan Williamson	In-Pipe Technologies	Vendor

* Indicates Stakeholder Advisory Group members.

Attachment 2

Technologies for Consideration Watershed Protection

Animal waste treatment technologies - liquids and solids
In-drain treatment technologies
Amalgam separation technologies
Sludge treatment for pathogen equivalency
Medical waste treatment
Ship ballast water treatment
Biological additives to wastewater collection systems
Modified animal feed
Membrane liners
Funeral home waste treatment
Car wash wastewater treatment
Barrier curtains for surface waters
Precision agriculture
Spill containment and control
Surface water restoration
Soil stabilization and erosion control
Non-chemical process water treatment
Algaecides
No-till farming technologies
Interceptors for solids separation